Heavy-Duty Vehicle Greenhouse Gas (GHG) Emission Reduction Regulation



California Environmental Protection Agency

Air Resources Board

Presentation Overview

- Purpose
- Status of Regulation
- Applicability
- Requirements
- Optional Phase-in Plans
- Reefer Trailer Provision

- Current Technologies
- Local-Haul and Short-Haul Exemptions
- Exempt Tractors and Trailers
- Enforcement
- Funding Assistance

Reduce GHG Emissions by Improving:

Tractor aerodynamics

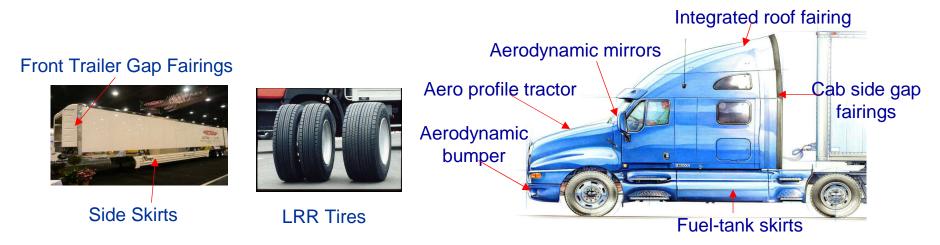
 Streamlined hood, sleeper cab roof fairings, gap fairings, fuel tank fairings, aerodynamic bumper & mirrors

Trailer aerodynamics

Side skirts, front gap fairings, rear trailer fairings

Tire rolling resistance

Low rolling resistance (LRR) tires



Status of Regulation



- Board approved in December 2008
 - http://www.arb.ca.gov/regact/2008/ghghdv08/ghghdv08.htm
- 15-day changes
 - 15-day public comment for the revised regulation: September 17, 2009 thru October 2, 2009
 - Address issues directed by Board/public
 - Final adoption of regulation: December 2009

Applicability

- Tractors pulling 53' or longer box-type trailers
- 53' or longer box-type trailers (dry-van & refrigerated-van trailers)
- Responsible for compliance: owner, driver, motor carrier, California-based broker, and California-based shipper
- All owners operating affected vehicles in California regardless of where their vehicle is registered
- Implementation begins in 2010

What the Rule Requires

- Tractor requirements for new and existing tractors
 - Aerodynamic equipment and LRR tires on new
 - LRR tires on existing
- Trailer requirements for new and existing trailers
 - Aerodynamic equipment and LRR tires on both new and existing
- Equipment requirements based on U.S. EPA SmartWay certification/verification
- Registration of trailers for the optional extended phase-in plan for fleets
- Registration of local-haul and short-haul tractors and trailers to apply for exemption

Tractor Requirements



New tractor purchases:

- •2011+ model year (MY) sleeper-cab tractors
 - SmartWay certified tractor (aerodynamics and LRR tires)
 - January 1, 2010
- •2011+ MY day-cab tractors
 - SmartWay verified LRR tires (tires only)
 - January 1, 2010

Existing tractors:

- •All 2010 and older MY sleeper-cab and day-cab tractors
 - SmartWay verified LRR tires (tires only)
 - Compliance by January 1, 2012

Trailer Requirements



New trailer purchases:

- 2011+ MY 53-foot or longer box-type trailer
 - SmartWay certified or
 - Retrofitted with SmartWay technologies:
 - LRR tires* and
 - Aerodynamic devices*
 - Select one or more devices that add up to the percent improvement target
 - Minimum of 5% fuel efficiency improvement for a dry van
 - Minimum of 4% fuel efficiency improvement for a refrigerated van
 - Compliance by January 1, 2010

^{*}Based on U.S. EPA SmartWay certified/verified technologies

Trailer Requirements (continued)



Existing Trailers:

- 2010 and older MY 53-foot or longer boxtype trailers
 - Same requirements as 2011+ MY trailers (aerodynamics and tires)
 - -Compliance by January 1, 2013; or
 - Participate in an optional phase-in plan:
 - Small fleet compliance plan
 - Large fleet compliance plan

Optional Small Fleet Compliance Plan



- Small fleet 20 or fewer trailers
- Phase-in: 2013 2016
- Submit Compliance Plan by July 1, 2012
- May elect to participate in large fleet compliance plan

Percentage of Trailers	Compliance Before
25%	January 1, 2014
50%	January 1, 2015
75%	January 1, 2016
100%	January 1, 2017

Optional Large Fleet Compliance Plan



- Large fleet 21 or more trailers
- Phase-in: 2010 2015
- Early compliance option
- Submit Compliance Plan by July 1, 2010

Percentage of Trailers	Compliance Before
5%	January 1, 2011
15%	January 1, 2012
30%	January 1, 2013
50%	January 1, 2014
75%	January 1, 2015
100%	January 1, 2016

Optional Trailer Fleet Compliance Plan Reporting

Fleet Information Submitted in the Plan:

- Trailer fleet list
 - Large Fleet includes only California operated
 - Small Fleet includes total trailer fleet
- Specific information for each trailer
- Identification of trailers to be bought into compliance each year to meet the fleet phase-in plan

General Requirements:

- Provide all required information to ARB by due dates
- Ensure designated trailers meet compliance schedule
- Allow ARB to audit records and equipment
- Maintain all documentation at location specified on trailer fleet list





Delayed Compliance for Some Refrigerated Vans

- Applicable to 2003 2008 MY Reefer Trailers with 2003 or newer TRUs
- No reporting required for these trailers

Trailer Model Year	Compliance Before
2003-2004	January 1, 2018
2005-2006	January 1, 2019
2007-2008	January 1, 2020

New SmartWay Certified Tractors Currently Available

Fully aerodynamic with LRR tires











New SmartWay Certified Dry-van Trailers Currently Available

- Aerodynamics and LRR tires
- Refrigerated-van certification coming soon
- Purchased directly from trailer manufacturer/dealer







SmartWay Verified Aerodynamic Technologies

- Retrofit technologies
- Technologies: front fairings, rear fairings and side skirts
- Purchased directly from trailer manufacturer/dealer







SmartWay Certified LRR Tires

- Dual or single wide tires
- Retread tires exempt if SmartWay verified casings are used
- Purchased directly from tire manufacturer/dealer





DISCLOSURE TRAILERS

- Prior to January 1, 2013, Lessor must provide written notice or language in lease or contract and allow for modifications to equipment for compliance
- After January 1, 2013, the disclosure language must be in the lease or contract otherwise Lessor is responsible for compliance

Disclosure

- Leased Trailer Fleet
- Disclosure language:

"The lessee of this box type trailer understands that when using a heavy-duty tractor to pull a 53-foot or longer box type trailer on a California highway, the heavy-duty trailer must be compliant with sections 95300-95311, title 17, California Code of Regulations, and that it is the responsibility of the lessee to ensure this heavy-duty tractor is compliant. The regulations may require this trailer to have low rolling resistance tires and aerodynamic technologies that are U.S. Environmental Protection Agency (EPA) Verified SmartWay Technologies prior to current or future use in California.

DISCLOSURE TRACTORS

 The disclosure language must be in the lease or contract otherwise Lessor is responsible for compliance

Disclosure

- Leased Tractor
- Disclosure language:

"The lessee of this heavy-duty tractor understands that when using a heavy-duty tractor to pull a 53-foot or longer box type trailer on a California highway, the heavy-duty tractor must be compliant with sections 95300-95311, title 17, California Code of Regulations, and that it is the responsibility of the lessee to ensure this heavy-duty tractor is compliant. The regulations may require this tractor to have low rolling resistance tires that are U.S. Environmental Protection Agency (EPA) Verified SmartWay Technologies prior to current or future use in California, or may entirely prohibit use of this tractor in California if it is a model year 2011 or later tractor and is not a U.S. EPA Certified SmartWay Tractor."

Short-Haul Exemption

Tractors only

- -50K miles or less per year
- –Exempted from both the aerodynamic and LRR tires
- Must register vehicle with annual updates on mileage to ARB

Local-Haul Exemption

Tractors and trailers

- Operation restricted to within a 100-mile radius of registered home base
- Exemption from aerodynamic requirement only
 (LRR tires required)
- Must register vehicle and home base information with ARB prior to operation

Exempt Tractors and Trailers

- Drayage tractors & trailers
 - Operate within a 100 mile radius of port or intermodal rail yard
- Container-chassis trailers
- Drop-frame van trailers
- Curtain-side van trailers
- Emergency vehicles
- Solid waste vehicles
- Military vehicles



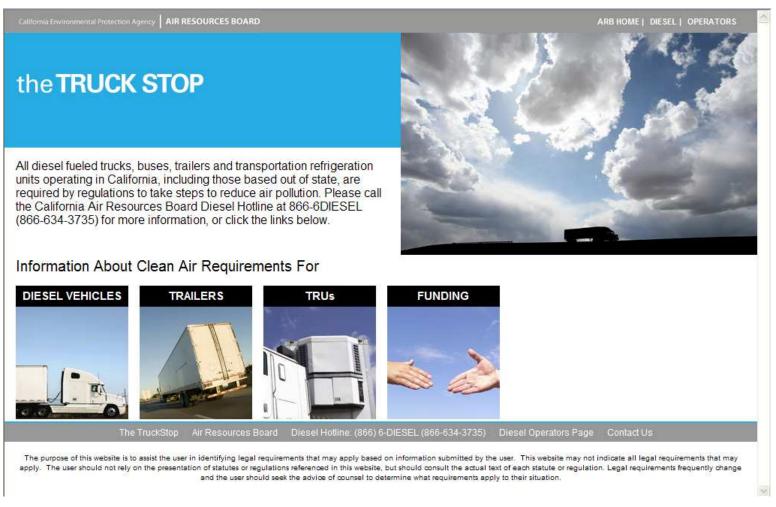




Enforcement to Ensure Equity

- Expand existing inspection efforts
 - Weigh stations, random roadside and fleet
- Web-based database for tracking vehicle records
- Crosscheck with other regulatory programs
- Fleet record audits

Truck Stop - Online Resource



www.arb.ca.gov/truckstop 866-6DIESEL or 866-634-3735

For More Information...

On-Road Heavy Duty Diesel Section

DIESEL HOTLINE:

- (866) 6-DIESEL (866-634-3735)
- Email: 8666diesel@arb.ca.gov

the TRUCK STOP Web Address:

http://www.arb.ca.gov/msprog/truckstop/truckstop.htm

Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation Web Address:

http://www.arb.ca.gov/cc/hdghg/hdghg.htm

Listserv: http://www.arb.ca.gov/listserv/hdghg.htm

SmartWay Program Information:

http://epa.gov/smartway/





Truck and Bus Regulation



California Environmental Protection Agency



Presentation Overview

- Health Effects
- Regulation status
- Applicability
- Regulation overview
- Reporting and disclosure
- Fleet calculator

Public Concerns

Emissions from diesel-fueled engines are mainly composed of Particulate Matter (PM-10, PM 2.5) and gases which contain cancer-causing substances such as:

Arsenic

Benzene

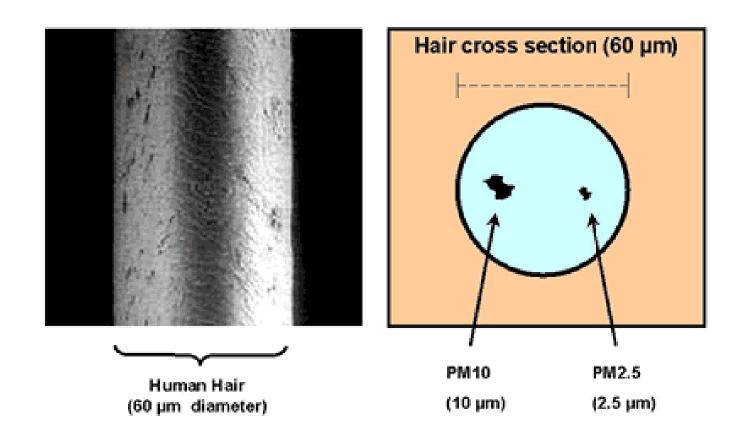
Formaldehyde

Nickel

Polycyclic aromatic hydrocarbons

What's in Diesel Exhaust?

HOW SMALL IS PM?



Particulate Matter

Most Polluted Regions in the U.S.

1. Pittsburg

(PM 2.5)

- 2. Los Angeles Metro
- 3. Fresno
- 4. Bakersfield/Kern Co.
- 5. Birmingham, AL
- 6. Logan, UT
- 7. Salt Lake City
- 8. Sacramento
- 9. Detroit
- 10. Washington, D.C. Metro



4 of the top 10 are in California

Status

- Adopted by the Air Resources Board December 2008
- Approved by the Office of Administrative Law (OAL)
 December 9, 2009
 - In effect January 8, 2010
- No changes or delays have been made
 - Staff will evaluate modifications that provide additional flexibility for smaller fleets adversely affected by the economy
 - Public workshops early 2010
 - Proposed amendments to be presented to the Board Spring 2010

Truck and Bus Regulation Applicability

- Diesel vehicles operating in California
 - Trucks and buses over 14,000 GVWR
 - Agricultural use yard trucks (on-road and off-road engines)
 - Shuttle buses that frequent transit centers of any GVWR
- Federal, private, and school district fleets

Truck and Bus Regulation Applicability

 Any person, business, or government agency who owns, leases, rents, or sells a vehicle in California

California based brokers and dispatchers

 Excludes emergency vehicles, military tactical vehicles, personal use motorhomes, solid waste collection vehicles and drayage trucks

Regulation Overview

- All vehicles must have particulate matter (PM) filters by 2014
 - Phased in starting 2011
- By 2023 all vehicles must have 2010 model year engines or equivalent
 - Phased in starting 2013
- Special provisions, credits
- Fleet calculator available to assist fl

Some Diverse Vehicle Types Regulation



Concrete Mixer



Water Truck



Reefer Van



Tow Truck



Hay Squeeze



Yard Truck



Drill Rig



Truck Tractor



Passenger Bus

Terminology

PM Filter

- Retrofit verified by ARB to reduce PM by highest level
 - Level 2 = 50%
 - Level 3 = 85%
- Originally equipped (2007 model year or newer)
- 2010 Engine (or equivalent)
 - Engine meeting 2010 MY emissions standard
 - 2004-2006 with 85% NOx reduction
 - 2007-2009 engine with 70% NOx reduction

Special Provisions Summary

- Small fleets
- Low usage
- Lower usage
- Retirement credits
- Attainment area operation
- Agricultural vehicles
- Early PM retrofit credits
- Unique vehicles

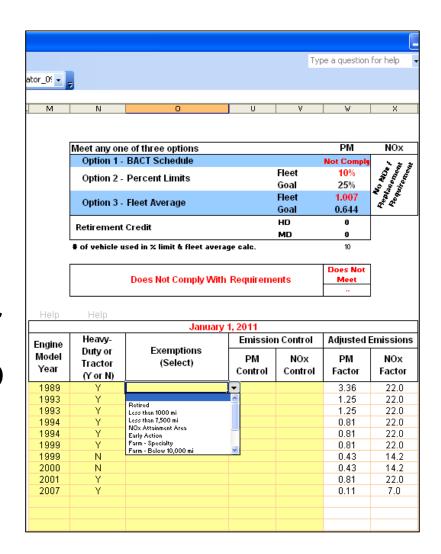
- Manufacturer delays
- Certain cab-over engine truck tractors
- Hybrid and alternative fueled vehicles credits
- Three day pass
- School buses
- Motor coaches
- Two engine sweepers

Reporting and Disclosure

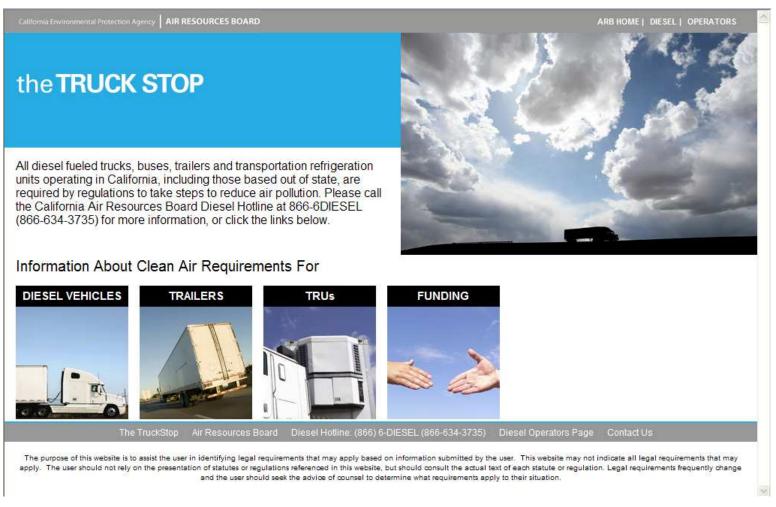
- Most fleets start reporting January 31, 2011
 - No reporting if meeting best available control technology compliance schedule
- Reporting March 31, 2010 for:
 - Agricultural vehicle provisions
 - Retirement credits
 - Two engine sweepers
 - Early PM filters
- Requires disclosure statement on bill of sale

Fleet Calculator

- Excel spreadsheet available to assist fleet owners in determining potential compliance options
- www.arb.ca.gov/mspr og/onrdiesel/calculato rs.htm



Truck Stop - Online Resource



www.arb.ca.gov/truckstop 866-6DIESEL or 866-634-3735

Transport Refrigeration Units (TRU) Regulation



California Environmental Protection Agency



Outline

- Regulation status
- Enforcement grace period/delay
- Who and what is affected
- In-use performance standards
- Registration of California-based TRUs
- Operator reports
- Compliance options



Regulation Status

- TRU ATCM adopted February 2004
- Effective December 2004
- Requested U.S. EPA waiver March 2005
- EPA approved the waiver January 16, 2009
- Enforcement delay

Enforcement Delay

- New deadline for registering Californiabased TRUs and submitting Operator Reports
 - July 31, 2009
 - Enforcement begins in August 2009
- New deadline for meeting the In-Use Performance Standards
 - December 31, 2009
 - Enforcement begins January 2010

Who and What is Affected

- TRUs equipped on trucks, trailers, shipping containers, or railcars that operate in California
 - Includes those that enter California from out-ofstate, Canada, or Mexico
- Operators of California terminals







In-Use Performance Compliance Schedule

Engine Model Year	Compliance Date	Requirement
	Dec. 31, 2008	Install Level 2 PM VDECS, then by Dec. 31, 2015
	(Delayed to	Install Level 3 PM VDECS or
2001	Dec. 31, 2009)	Replace engine every seven years
		Install Level 2 PM VDECS, then by Dec. 31, 2016
		Install Level 3 PM VDECS or
2002	Dec. 31, 2009	Replace engine every seven years
2003	Dec. 31, 2010	
2004	Dec. 31, 2011	
2005	Dec. 31, 2012	
2006	Dec. 31, 2013	
2007	Dec. 31, 2014	
2008	Dec. 31, 2015	Install Level 3 PM VDECS or
2009	Dec. 31, 2016	Replace engine every seven years
2010	Dec. 31, 2017	
2011	Dec. 31, 2018	
2012	Dec. 31, 2019	
2013*	Dec. 31, 2020	
2014*	Dec. 31, 2021	

Note: Generally, the compliance date is December 31st of model year plus 7 years.

^{* ≤ 25} hp Tier 4 engines do not meet final requirement (ULETRU).

Compliance Options for Meeting In-Use Performance Standards

- Replace in-use engine with new engine
- Replace in-use engine with rebuilt engine
 - Must be rebuilt to more stringent standard
 - See TRU Advisory 08-05
- Retrofit exhaust with required level of VDECS
 - Level 2 VDECS meets LETRU
 - Level 3 VDECS meets ULETRU
- Use Alternative Technology

- Compliance Options Alternative Technologies
- Must Eliminate TRU Engine Operation at Facilities -
- Electric standby or hybrid electric/diesel
 - To qualify, TRU engines must not operate at distribution centers so that diesel emissions are eliminated (see TRU Advisory 08-02)
 - Must plug in at any delivery point where more than 2 TRUs present or delivery takes more than 30 minutes
 - Records required to demonstrate compliance
- Hybrid Cryogenic Temperature Control
 - Must eliminate diesel PM emissions at all facilities
 - See TRU Advisory 08-13

Registration Requirements

- What TRU's must be registered?
 - California-based TRUs
 - Leased units see TRU Advisory 08-04
 - Out-of-state TRUs registration is voluntary
 - Will reduce inspection time
- Register online at ARB's Equipment Registration (ARBER) system
 - http://www.arb.ca.gov/arber/arber.htm
 - Obtain identification numbers (IDN) to affix to the unit

TRU Regulation

Registration – Identification – Numbers (IDNs)

- Affix to both sides of TRU housing, after the letters "ARB"
 - May be horizontal (one or two lines)
 - May be vertical (read from top to bottom) How do I affix the ARB IDNs to my TRU?
 - See TRU Advisory 08-10-R1
- Letter color contrasts sharply with housing color
- Sized to be able to read from 50 feet

Example IDN Pictures



Example IDN Pictures



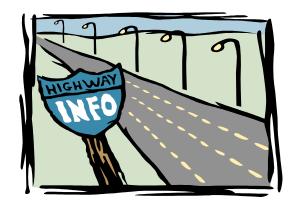


Who Must Submit Operator Reports

- Operators of California terminals where California-based TRUs are regularly garaged, maintained, operated, or dispatched from, including a dispatch office, cross-dock facility, maintenance shop, business, or private residence
 - Excludes a third-party maintenance and repair facility
- Reporting deadline is July 31, 2009
 - Complete after TRU registration (need IDNs)

TRU Regulation Contact TRU Regulation Information

- TRU website: http://www.arb.ca.gov/diesel/tru.htm
- TRU List Serve: http://www.arb.ca.gov/listserv/tru.htm
- ARBER website: http://www.arb.ca.gov/arber/arber.htm
- TRU Help Line: 1-888-878-2826 (1-888-TRU-ATCM)
- Lists of verified DECS: http://www.arb.ca.gov/diesel/verdev/vt/vt.htm



Drayage Truck Regulation



Affects class-eight diesel-fueled trucks entering California's ports and intermodal rail yards



Status

- ❖Became law December 2008
- Approved Rule changes
 - Trucks with 2004-2006 MY engines Must install PM retrofits by 2012 and 2013
 - Clarification that alternative fueled vehicles are exempt

Drayage Truck Registry (DTR)

- All trucks must be registered prior to entry
- Required for enforcement
- Optional truck labels available







- Check compliance status online available to public
- Working with ports and industry databases
- www.arb.ca.gov/drayagetruck

Basic Responsibilities

Truck owner:

- Ensure trucks meet emission requirements starting December 31, 2009
- Register with the DTR

Motor carrier:

- Ensure trucks are in compliance with the regulation before dispatching to a port or rail yard
- Ensure truck operators have motor carrier contact information and a copy of the regulation
- Keep drayage truck dispatch records
- See website for additional information:
 - http://www.arb.ca.gov/drayagetruck

Contact Information

Regulation

- Mike Sutherland
- Phone: (916) 327-5609
- email: <u>msutherl@arb.ca.gov</u>

Regulation / truck and technologies

- John Gruszecki
- Phone: (916) 327-5601
- email: jgruszec@arb.ca.gov

Drayage truck registry

- Jesica Johnston
- Phone: (916) 327-5608
- email: jjohnsto@arb.ca.gov

For More Information...

- Drayage truck regulation website: www.arb.ca.gov/drayagetruck
- Drayage truck phone number:1-888-247-4821
- Drayage truck registry: http://www.arb.ca.gov/arber/arber.htm
- Truck stop website: http://www.arb.ca.gov/msprog/truckstop/truckstop.htm

Funding Opportunities for Diesel Vehicle Owners



Air Resources Board Financial Incentive Programs

- Grant programs and vouchers
- Loan guarantee programs
- Funding is available for the following:
 - Vehicle replacements
 - Engine retrofits
 - Engine hybrid technologies
 - SmartWay approved aerodynamic technologies
 - Engine repowers (off-road only)

the Truck Stop

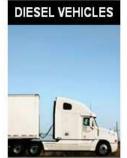
visit: www.arb.ca.gov/truckstop

the TRUCK STOP

All diesel fueled trucks, buses, trailers and transportation refrigeration units operating in California, including those based out of state, are required by regulations to take steps to reduce air pollution. Please call the California Air Resources Board Diesel Hotline at 866-6DIESEL (866-634-3735) for more information, or click the links below.



Information About Clean Air Requirements For







Let us know what you think, take the Truck Stop survey!

The TruckStop Air Resources Board Diesel Hotline: (866) 6-DIESEL (866-634-3735) Diesel Operators Page Contact Us

The purpose of this website is to assist the user in identifying legal requirements that may apply based on information submitted by the user. This website may not indicate all legal requirements that may apply. The user should not rely on the presentation of statutes or regulations referenced in this website, but should consult the actual text of each statute or regulation. Legal requirements frequently change and the user should seek the advice of counsel to determine what requirements apply to their situation.

California Environmental Protection Agency | AIR RESOURCES BOARD ARB HOME | DIESEL | OPERATORS

the TRUCK STOP

TRUCK STOP | DIESEL VEHICLES | TRAILERS | TRUS | FUNDING ASSISTANCE



Financial Assistance for California Trucks

The Air Resources Board (ARB) has several financial assistance programs that provide grants, loans and loan guarantees, vouchers, or rebates to help truck and equipment owners with the purchase of cleaner trucks and equipment. Funding may be available for the following: medium heavy-duty diesel trucks (14,000 to 33,000 pounds gross vehicle weight rating) and heavy heavy-duty diesel trucks (33,001 pounds or more gross vehicle weight rating), trailers, and transport refrigeration units (TRU's or reefers). Below is a tool to help you find financial assistance that may be available to help you clean up your trucks and equipment. For questions regarding ARB's diesel regulations or any of ARB's financial assistance programs for trucks, please contact the Diesel Hotiline at (866) 6-DIESEL (634-3735).

For information on manufal assistance for Agricultural Trucks or School Buses click the respective link.



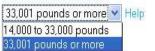
submit

Financial Assistance for Trucks

Please ten us more about your diesel truck or fleet of trucks. This information remains anonymous.

- How many on-road heavy-duty diesel trucks do you own? 1-3 vehicles
- What is the gross vehicle weight rating (GVWR) of the truck you would like financial assistance information for?

■ Do you currently operate or intend to operate any of your trucks at a port or intermodal rail yard? | no ▼







■ Trailers

Financial Assistance for Transport Refrigeration Units



■ Transport Refrigeration Units

Financial Assistance for Other Vehicles

Financial assistance for Solid Waste Collection Vehicles, Public Agency and Utility Fleets, and Transit Vehicles is very limited. Please contact the Diesel Hotline at (866) 6-DIESEL (634-3735) or your local air district.

For More Information

 Visit the Truck Stop website: www.arb.ca.gov/truckstop

Call 1-866-6-DIESEL (866-634-3735)

Email: 8666diesel@arb.ca.gov

Note: Off-Road incentive information can be found at:

www.arb.ca.gov/msprog/moyer/moyer.htm www.arb.ca.gov/ba/loan/off-road/off-road.htm